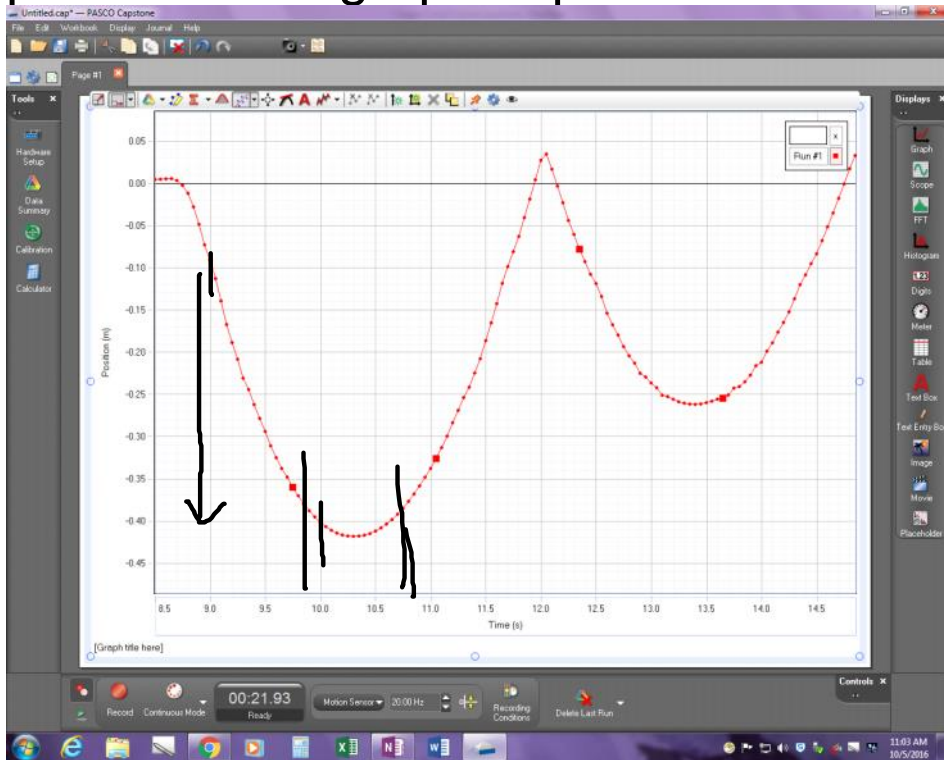
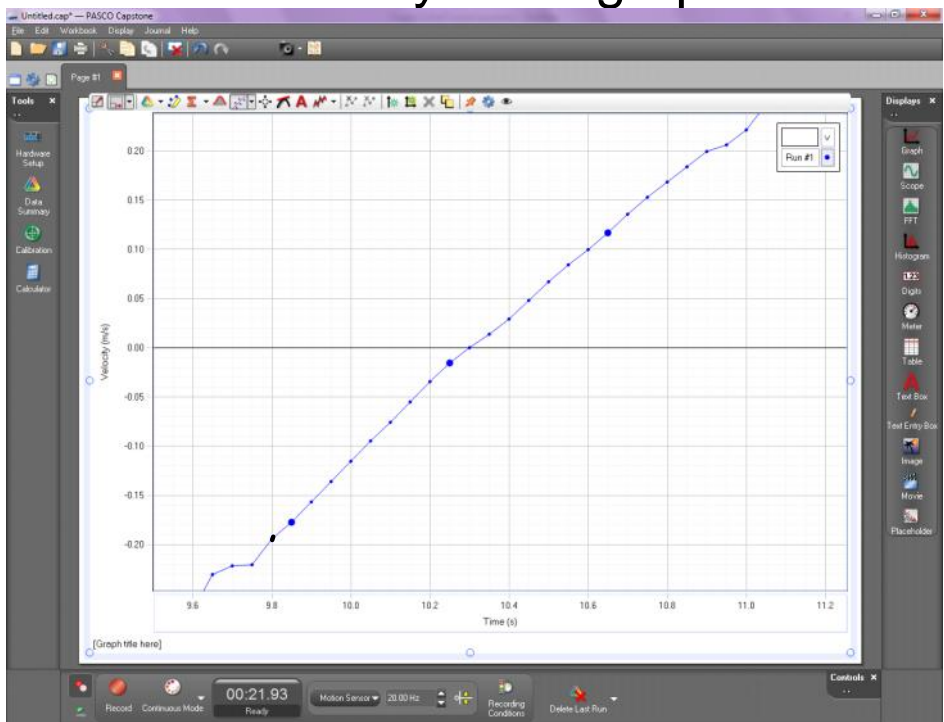


Acceleration

for a cart moving up and down a slope, the position-time graph is parabolic:



While the velocity -time graph is linear

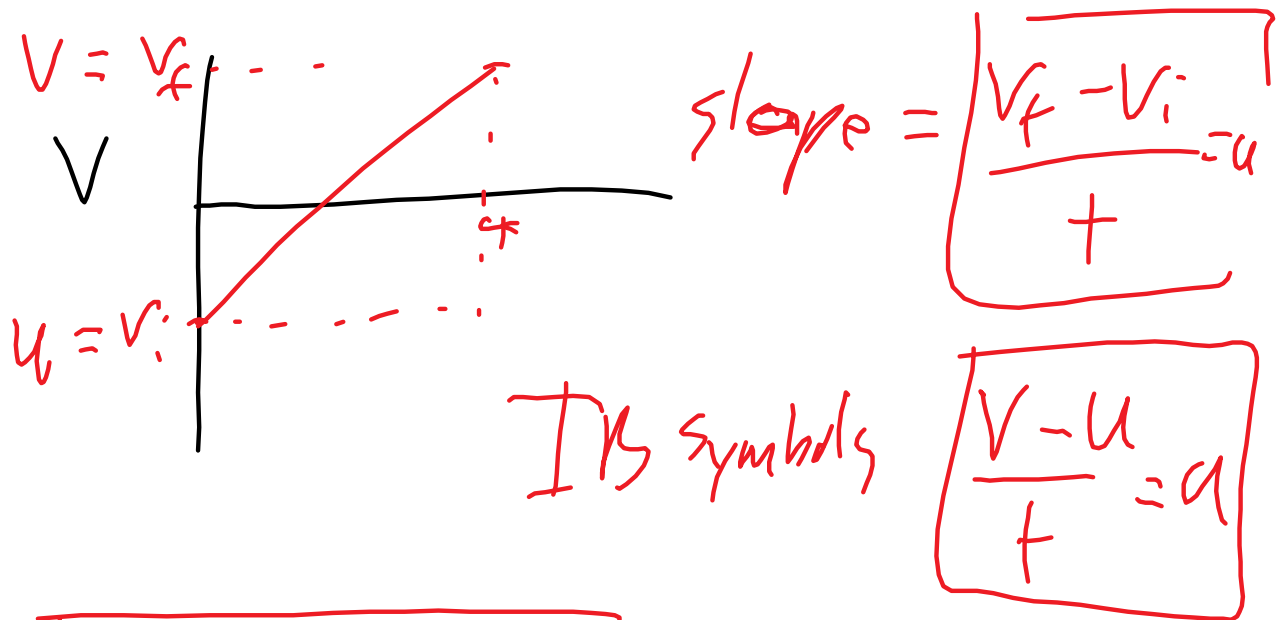


with the slope representing acceleration

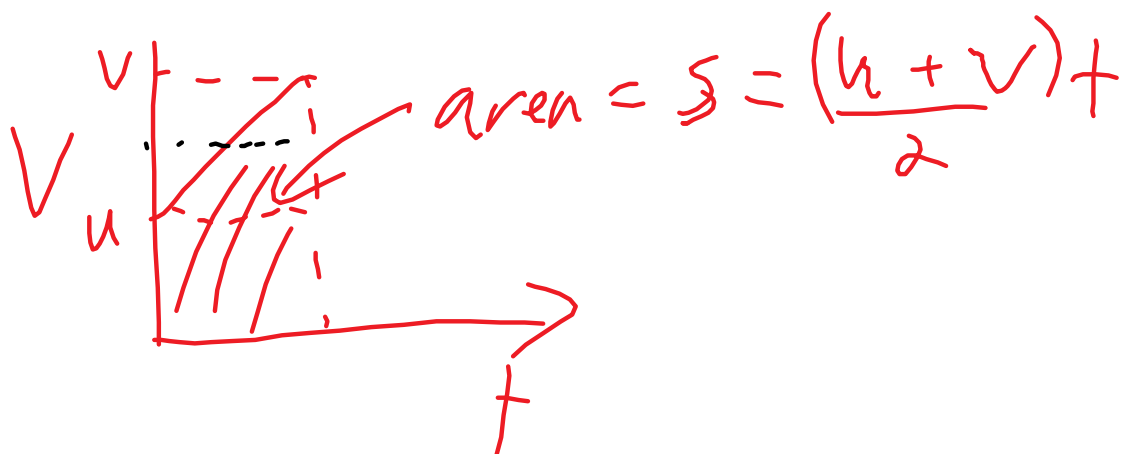
define acceleration, a , as the rate of change in velocity

$a = \Delta v / \Delta t$ = slope of a v - t graph for uniform acceleration
acceleration = slope of the tangent to the v - t curve for non-uniform acceleration

Let's look at uniform acceleration - derive equations for accelerating motion.



$$v = at + u$$



e.g. the cart is moving up

a slope at -0.19 m/s
at 9.8 s and is moving
at $+0.17 \text{ m/s}$ at 10.8 s ,

Determine

a) $a = ?$

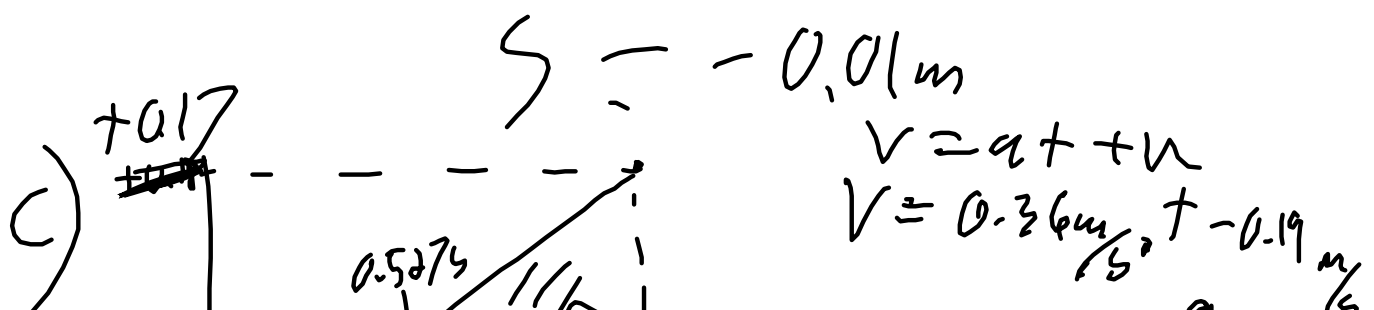
b) $s = ?$

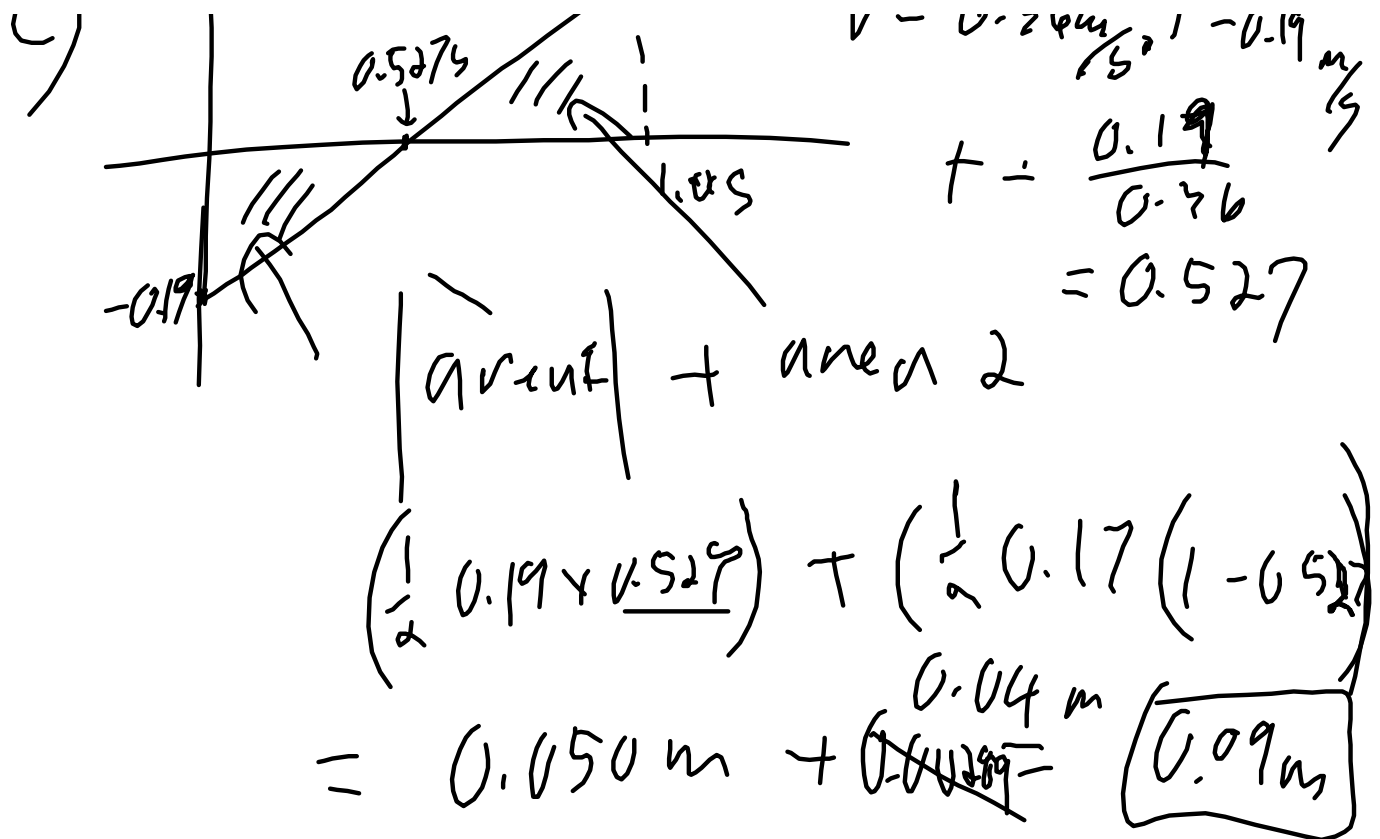
c) distance ~~travelled~~ ^{travelled}

$$a) a = \frac{v - u}{t} = \frac{0.17 \text{ m/s} - (-0.19 \text{ m/s})}{1.0 \text{ s}}$$

$$a = 0.36 \text{ m/s}^2$$

$$b) s = \frac{v + u}{2} t = \frac{0.17 - 0.19 \text{ m/s}}{2} (1.0 \text{ s})$$





p66-69

Practice problems 1-12 CR 1.1-1.4

Quiz

a) 6 b) 2 c) 4 d) 3

round to the lowest # of Sig Figs

2 a) $6.2 \times 10^9 \text{ m}^2$ (13.2 Exp or EE or $\times 10^x$ 18 / 4.7 E -10) calculator

b) $2.60/12.8 = 0.2031 = 2.03 \times 10^4 \text{ m/s}$

3 a) round to the least precise decimal place

a) 114.7 m

b) $78.05 - 72.046 = 6.004 = 6.00 \text{ cm}$

c) $1.0002 - 1.10 = -0.0998 = -0.10 \text{ dm}$

4a) perimeter $34.2 \times 4 = 136.8$

$$0.3 \times 4 = 1.2 \quad 137 \pm 1 \text{ cm}$$

$$\text{b) } 34.2 \times 34.2 = 1,169.64$$

$$0.3/34.2 = 0.0088 \quad 0.0088 \times 1169.64 =$$

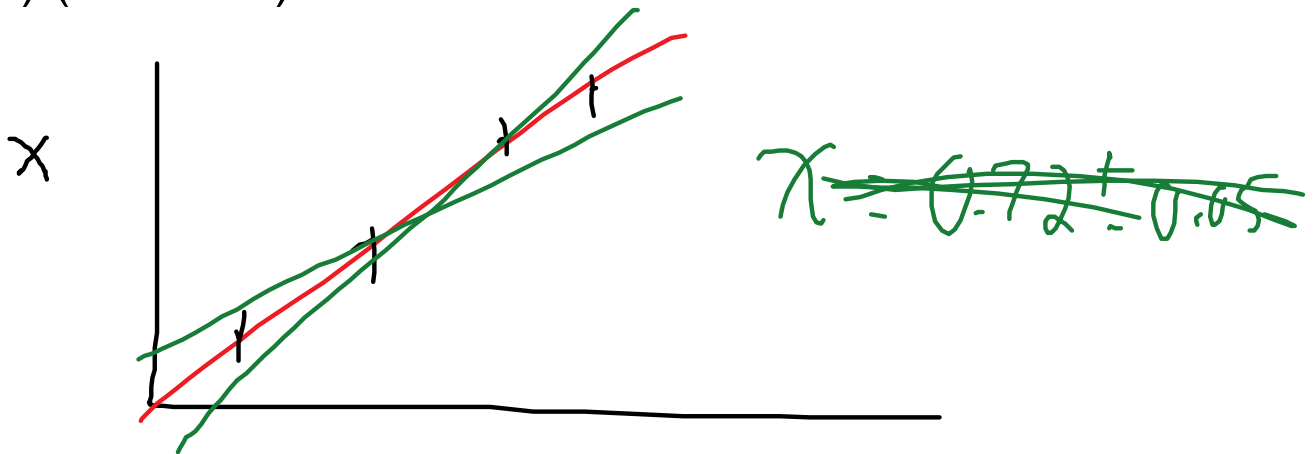
$$10.2928 \times 2 = 20$$

$$(1.17 \pm 0.02) \times 10^3 \text{ cm}^2$$

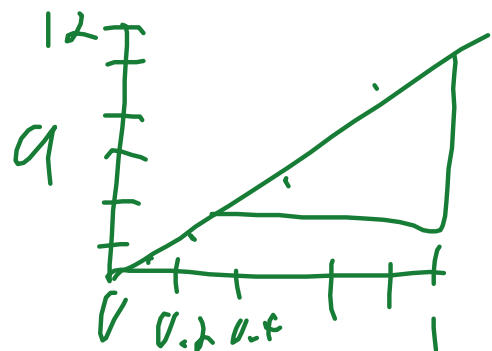
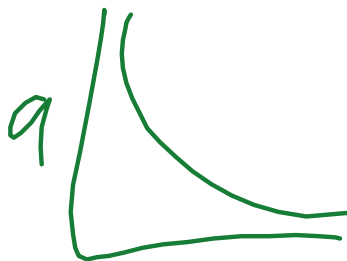
$$5 \text{ a) } 2.75 \text{ g/cm}^3$$

$$\text{b) range}/2 = 0.05 \text{ g/cm}^2$$

$$\text{c) } (2.75 - 2.7)/2.7 = 0.0185 = 1.9\% \text{ or } 2\%$$



$$X = 0.72 \pm 0.05 \text{ km} \quad M - 0.2 \text{ cm} \pm 0.04$$



$$a = 12.5 \text{ kg m/s}^2 \quad \frac{1}{11} - 0.8 \frac{\text{m}}{\text{s}}$$